REMARKS

By this amendment, claims 1, 6, 11, 12, and 30 have been amended and claims and 9, 10, and 33-36 are canceled to place this application in condition for allowance. Currently, claims 1-7, 8, 11-20, and 30-32 are before the Examiner for consideration on their merits.

In review, the Examiner made a number of rejections of the claims under 35 USC §102(b) and 35 USC §103(a). Seven specific rejections were made based on allegedly anticipating prior art, and two rejections were made alleging obviousness. Critical to the rejections under 35 USC §102(b) was the Examiner's interpretation that each reference taught a zinc oxide coating on a galvanized steel, with the zinc oxide coating acting as the claimed barrier layer. In asserting obviousness, the Examiner relies on only two of the seven primary references, JP 2000-054161 to Hori (JP '161) and JP 04-325665 to Hotta. The Examiner admits that these two references fail to teach the limitations found in claims 10, 11, 34, and 35, but alleges that it would be obvious to modify the composition of these two primary references in light of the teachings of JP 2001-303226 to Hori (JP '226). More specifically, the Examiner alleges that JP '226 teaches galvannealed sheets having carbon in the range of 0.05 to 0.2% and an overlapping amount of silicon, and concludes that it would be obvious to employ these range in the steels of the two primary references.

Regarding claims 12 and 36, the Examiner alleges that it would be obvious to employ the teachings of secondary reference, JP 10-140317, and modify the compositions of the primary references to include the claimed boron levels.

In response to the rejections, claim 1 has been amended to define the zinc layer as an alloyed molten zinc metal plating layer, and the base steel with a particular range of carbon and an upper limit of silicon. Support for these changes derives from claim 10 and the specification, see page 10, lines 9 and 10. It is respectfully submitted that these changes moot each and every rejection under 35 USC §102(b) on the sole grounds that the carbon range now included in claim 1 was found in original claim 10 and added claim

34, and these claims were only rejected under 35 USC §103(a).

As a result of the changes to claim 1, claims 10 and 34 are canceled. Claims 9 and 33 are also canceled in light of the more restrictive silicon limit now found in claim 1. Claims 35 and 36 are also canceled since they are duplicates of claims 12 and 13.

Turning now to the original rejection of claims 10 and 34, the rejections are addressed by the headings discussing the invention and the prior art, the particular combination of references used to support the obviousness rejection, and a summary.

INVENTION AND PRIOR ART

The invention relates to making a steel plate suitable for use in hot pressing operations. During hot pressing, quenching is concurrently carried out to harden the hot pressed product at the completion of the hot pressing step.

To achieve the hot pressable plate, the carbon content is controlled. More particularly, the carbon level is maintained at a relatively high level or between 0.08 and 0.45% by weight and claim 1 is now so amended. In concert with this limitation, silicon is controlled to ensure that the material is soft enough to accommodate the pressing operation, and claim 1 is amended to specify an upper limit of 0.05% by weight.

In general, the prior art utilizes a cold pressing operation using a steel plate of ultra-low carbon steel. JP '161 is an example of this processing wherein the material having a super low carbon level is cold pressed after plating to obtain a desired shape, see [0042]. Super or ultra low carbon steels are specifically used so that press formability at room temperature is improved. The Examiner's attention is also directed to the applied JP 2000-328,220 to Toki. This reference employs cold pressing, and utilizes a steel with a carbon content of 0.004%.

When high tensile strength steel is used, high contents of silicon are employed to stabilize the residual austenitic phase and provide increased strength.

JP '161 MODIFIED BY JP '226

In this rejection, the Examiner admits that JP '161 does not teach the claimed level

of carbon as recited in claim 10. In response to this deficiency, the Examiner cites JP '226 for the teaching of a steel composition having a range of carbon, i.e., 0.05-0.2%. It should be noted that claim 9 was rejected under 35 USC §102(b) and JP '161 on the basis that JP '161 disclosed a silicon content of at least 0.02%, which met claim 9. This rejection is also moot since silicon is now restricted to 0.05% or less.

The Examiner also notes that since JP '161 desires a steel with good formability and that JP '226 teaches such a steel, there is motivation to use the steel of JP '226 in place of the steel of JP '161.

In light of the amendment to claim 1, the issue of obviousness is whether one of skill in the art would be motivated to employ a steel that has the claimed ranges of carbon and silicon.

Applicants contend that the Examiner has not established a *prima facie* case of obviousness against claim 1, as amended. First, JP '161 recognizes that increasing the coating weight of the zinc layer improves formability. However, it is not easy to economically and efficiently accomplish this goal. JP '161 solves this problem by altering the surface characteristics of the plating layer, thus improving pressability or moldability. While JP '161 does not mention the composition of the carbon steel, super low carbon steel is exemplified, see [0042].

JP '226 is also concerned with hot dipped zinc coated steel and the problem of powdering and flaking when coating retained austenite steels, see [0012]. JP '226 provides a compositional and formula solution to this problem as shown in claim 1 thereof. Important to note is the presence of silicon in the retained austenite steels of this references. Referring to the Table on page 9 of this reference, all but one composition has significantly higher values of silicon than claimed. Alloy T is the only one exemplified with silicon and carbon contents that fall within the claimed ranges, see [0067]. However, JP '226 teaches that alloy T is inferior due to its lack of retained austenite and poor ductility. As noted above, silicon is critical for producing the retained austenite structure.

Applicants do not dispute that both JP '226 and JP '161 are concerned with finding ways to improve formability, this is the holy grail for molten zinc coated steel that requires

forming. However, Applicants do take issue with the Examiner's conclusion that the steels of JP '161 and JP '226 are similar, and therefore one of skill in the art would be led to modify JP '161 in light of the teachings of JP '226. In fact, the steels are not as similar as alleged in the Office Action. JP '161 exemplifies super low carbon steels. As shown by the aforementioned Toki publication, these steels typically have carbon contents measured in the thousandths of a percent. In contrast, JP '226 exemplifies desirable carbon contents two orders of magnitude greater.

In addition, JP '161 alters the playing layer in terms of grain size, see [0015], where JP '226 controls the plating layer in a different fashion, see equation (c) of claim 1 of JP '226. It is respectfully submitted that the composition and plating layer of JP '226 are inextricably linked and that one of skill in the art would *not* just select parts of JP '226 for modification of JP '161. Put another way, if JP '161 seeks to improve formability by altering the surface characteristics of the plating layer, and JP '226 seeks to improve formability by altering the composition and controlling the plating layer, why would one of skill in the art select the composition of the JP '226, alter it to define certain ranges of carbon and silicon, and then modify JP '161 by using such a composition. It is respectfully contended that there is no objective basis in fact to make such an allegation. The Examiner is engaging in the hindsight reconstruction in light of Applicants' own invention to formulate the rejection. This practice is expressly forbidden by the Court of Appeals for the Federal Circuit, thus making the rejection untenable.

Again, why redefine the limits of carbon and silicon in JP '226 to that which is claimed? One of skill in the art would not be taught to take a steel having retained austenite and limit its silicon content to less than 0.05% by weight. This alone precludes an allegation of obviousness on the part of the Examiner.

Turning back to a discussion of the prior art, it was a well recognized problem that the shift to use higher strength zinc coated sheets to gain weight savings resulted in a problem when forming the sheets. One solution to this problem was to employ hot pressing. While this is more effective with higher strength materials, it is also more costly, since the hot pressing operation creates an oxide layer that must be removed. Efforts to

minimize the oxide formation using non-oxidizing gases proved to be ineffective due to the cost of the equipment to hot press in this manner.

Other solutions involved coating the steel with aluminum, which was prohibitively expensive. Other techniques involved compositional control, but these oxide-inhibiting additions adversely affected press formability.

Applicants have solved all of the above problems, and particularly the oxidation problem of prior art hot pressing methods by the discovery that a certain type of material can be hot pressed effectively. This material, i.e., an alloyed molten zinc metal plating layer formed on the surface of the base steel material, the plating layer having on its surface a barrier layer which prevents vaporization of zinc during heating, the base steel material further having a carbon composition of between 0.08 and 0.45 % by weight, and a silicon content of less than or equal to 0.05% by weight is not taught in the prior art. The Applicants' discovery is quite unexpected when considering the cold pressing art of record, and this advancement rebuts any alleged *prima facie* case of obviousness based on modifying JP '161. As noted on page 23, lines 5 and 6, the prior art oxidation treatment normally employed with hot pressing is now optional. The results of Table 3 of the instant specification also show that hot pressing the material of claim 1 results in stunning results.

Even assuming that it would be obvious to take the composition of JP '226 and use it in JP '161, there is no recognition of setting the specific limits of carbon and silicon nor the realization that such a material can be hot pressed to the extent that the deoxidation treatment of the prior art can be eliminated. The results associated with the invention in terms of the ability to provide a material that can be hot pressed is unexpected and rebuts any contention of obviousness set forth by the cited prior art.

Since claim 1 is patentably distinguishable from the cited prior art, its dependent claims are also in condition for allowance.

HOTTA MODIFIED BY JP '226

The same arguments and reasoning as set forth above for the combination of JP

'161 and JP '226 apply for this rejection. Hotta attempts to solve the problem of formability by altering the surface roughness of the plating layer and forming an oxidized layer subsequent to the roughness treatment. JP '226 goes down a completely different road by control of the plating thickness and composition. Clearly, the treatment of the zinc layer is different for the two references. What the Examiner is doing is picking and choosing from the teachings of JP '226 and using the selected teachings to modify Hotta. Again, the Examiner would have the artisan employ only select teachings of JP '226 to arrive at the invention. It is respectfully submitted that the combination of references is untenable since there is no legitimate motivation to select just the steel of JP' 226 for use in Hotta, and leave behind the requirements about the plating layer.

As argued above, there is no motivation to modify the silicon content of JP '226 to be 0.05% or less, and without this, even the combination of JP '226 and Hotta does not teach the invention as now claimed.

Lastly, it is argued in this rejection that the discovery of the claimed material as a hot pressable material rebuts any allegation that Hotta and JP '226 establish a *prima facie* case of obviousness.

Since claim 1 is patentably distinguishable from the cited prior art, its dependent claims are also in condition for allowance.

SUMMARY

It is respectfully submitted that the original rejection of claim 10 as would be applied to amended claim 1 is no longer valid. The cited prior art as now applied to claim 10 fails to establish a *prima facie* case of obviousness. Even assuming that a *prima facie* case of obviousness has been established, the discovery of a material that can be used for hot pressing rebuts such a case, and makes claim 1, as amended, and its dependent claims patentable.

Accordingly, the Examiner is respectfully requested to examine this application in light of this amendment and pass all pending claims onto issuance.

If the Examiner believes that an interview with Applicants' attorney would expedite

allowance of this application, the Examiner is respectfully requested to telephone the undersigned at 202-835-1753.

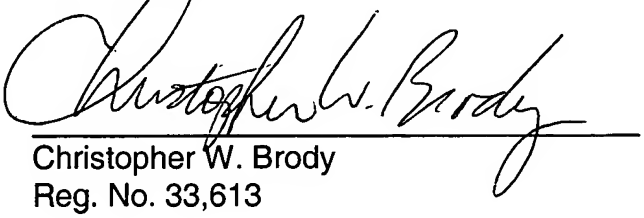
The above constitutes a complete response to all issues raised in the Office Action dated August 11, 2004.

Again, reconsideration and allowance of this application is respectfully requested.

A petition for a one month extension of time is hereby made. Attached herewith is a check in the amount of $110.00 to cover the petition fee. Please charge any fee deficiency or credit any fee overpayment to deposit account no. 50-1088.

Respectfully submitted,

CLARK & BRODY

By 

Christopher W. Brody
Reg. No. 33,613

1750 K Street, NW, Suite 600
Washington, DC 20006
Telephone: 202-835-1111
Facsimile: 202-835-1755
Docket No.: 12014-0023
Date: December 8, 2004